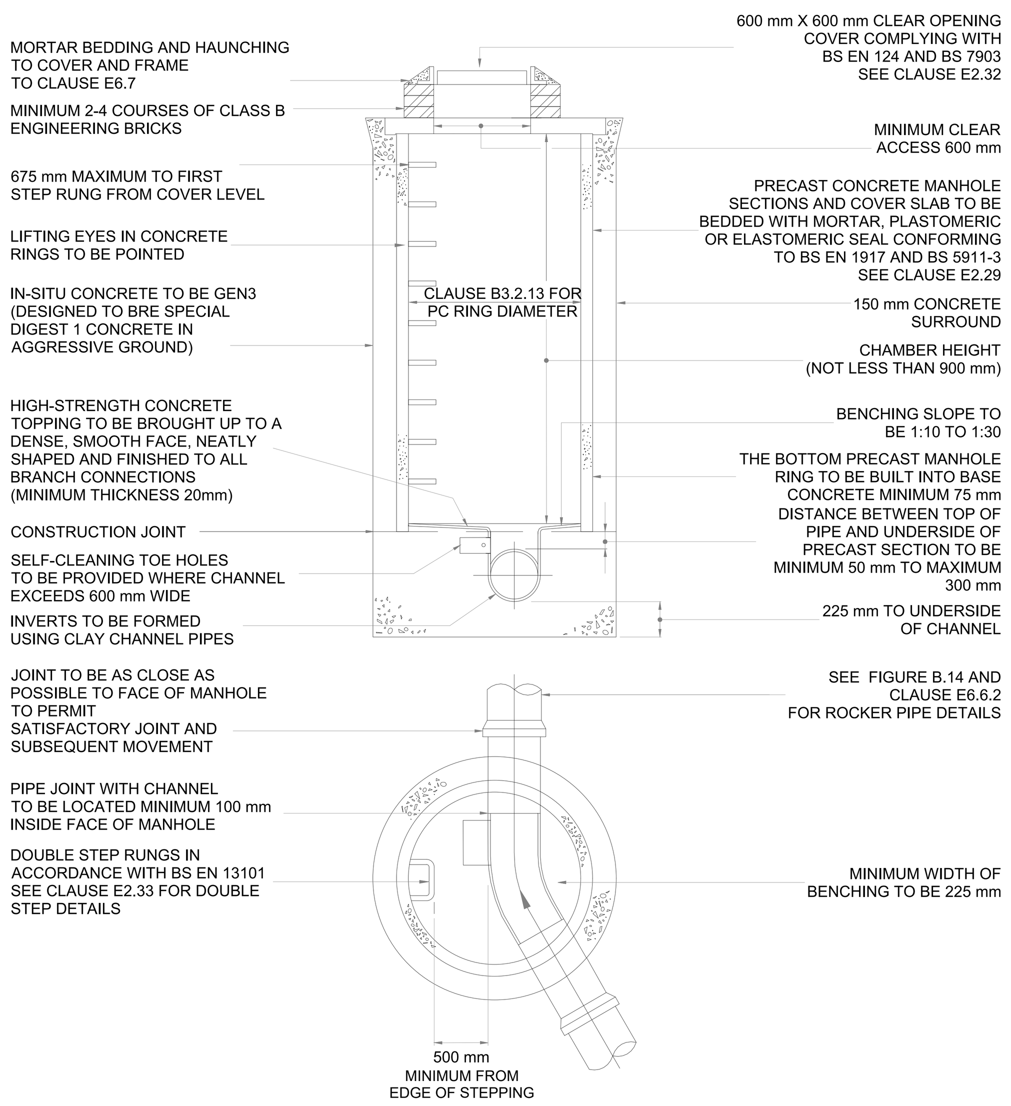
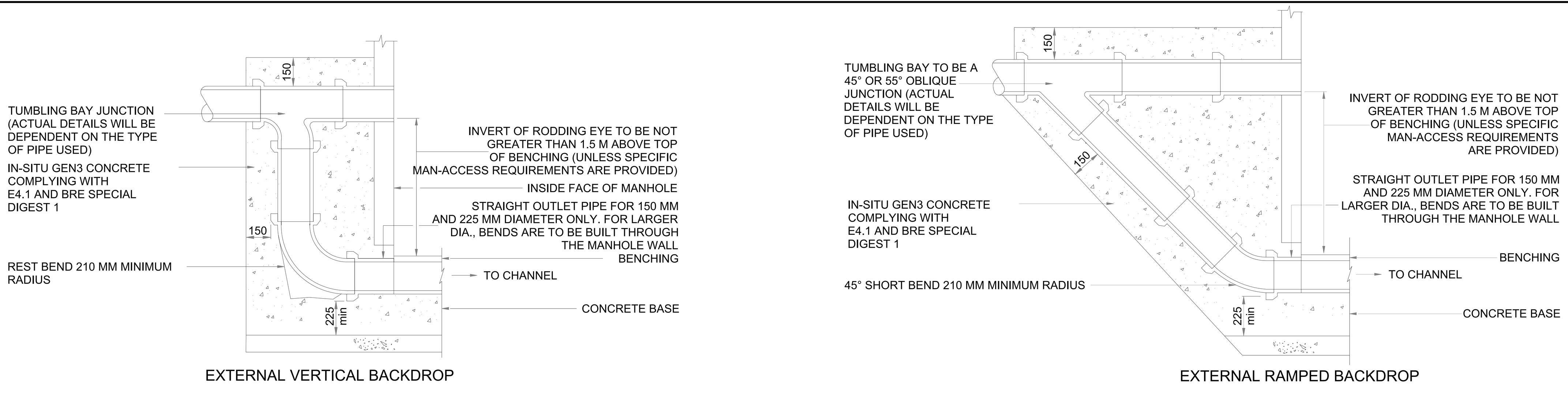


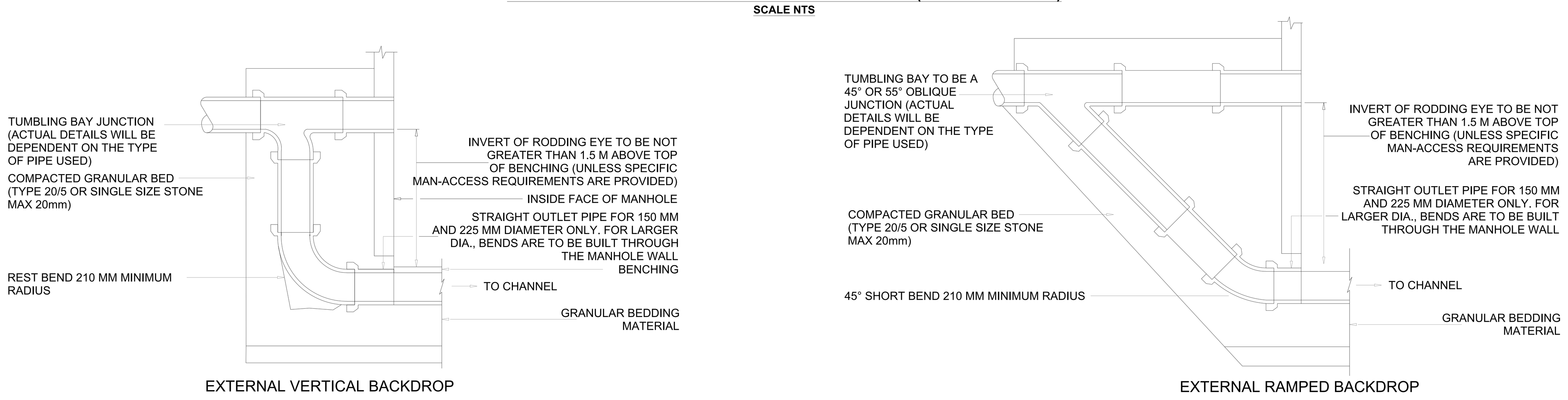
TYPICAL MANHOLE DETAIL - TYPE B
MAXIMUM DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE 3.0m
SCALE NTS

DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIAMETER OF MANHOLE
LESS THAN 375mm	1200mmØ
375-450mm	1350mmØ
500-700mm	1500mmØ
750-900mm	1800mmØ
GREATER THAN 900mm	PIPE DIAMETER + 900mm

PIPE DIA.	ROCKER PIPE LENGTH
150-600mm	600mm
675-750mm	1000mm
OVER 750mm	1250mm



TYPICAL VERTICAL AND RAMPED BACKDROP DETAIL (RIGID MATERIALS)
SCALE NTS



TYPICAL VERTICAL AND RAMPED BACKDROP DETAIL (FLEXIBLE MATERIALS)

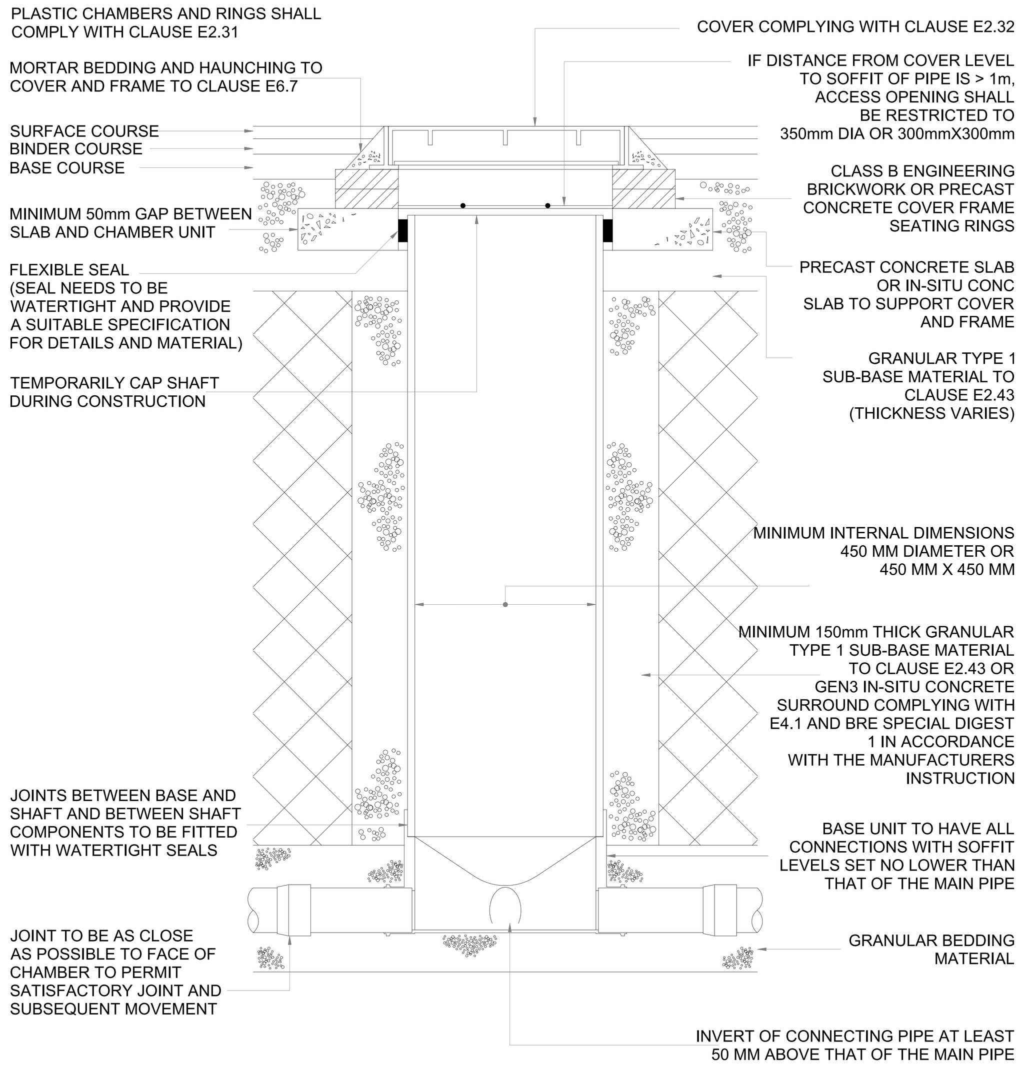


FIGURE B 18
TYPICAL INSPECTION CHAMBER DETAIL - TYPE D
DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE UP TO 3m
FLEXIBLE MATERIAL CONSTRUCTION FOR USE IN AREAS SUBJECT TO VEHICLE LOADING

PLASTIC CHAMBERS AND RINGS SHALL COMPLY WITH E2.31

SITED IN DOMESTIC DRIVEWAYS OR FOOTWAYS

SITED IN DOMESTIC GARDENS

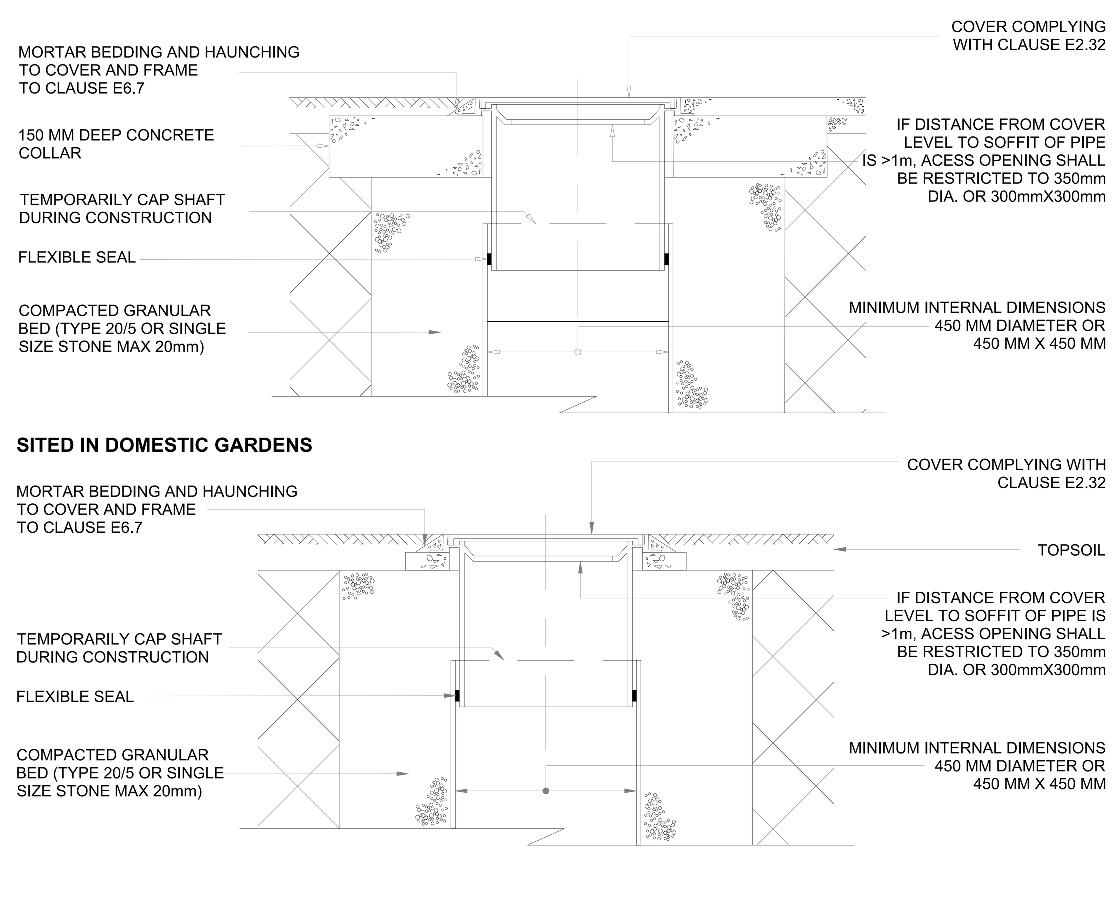
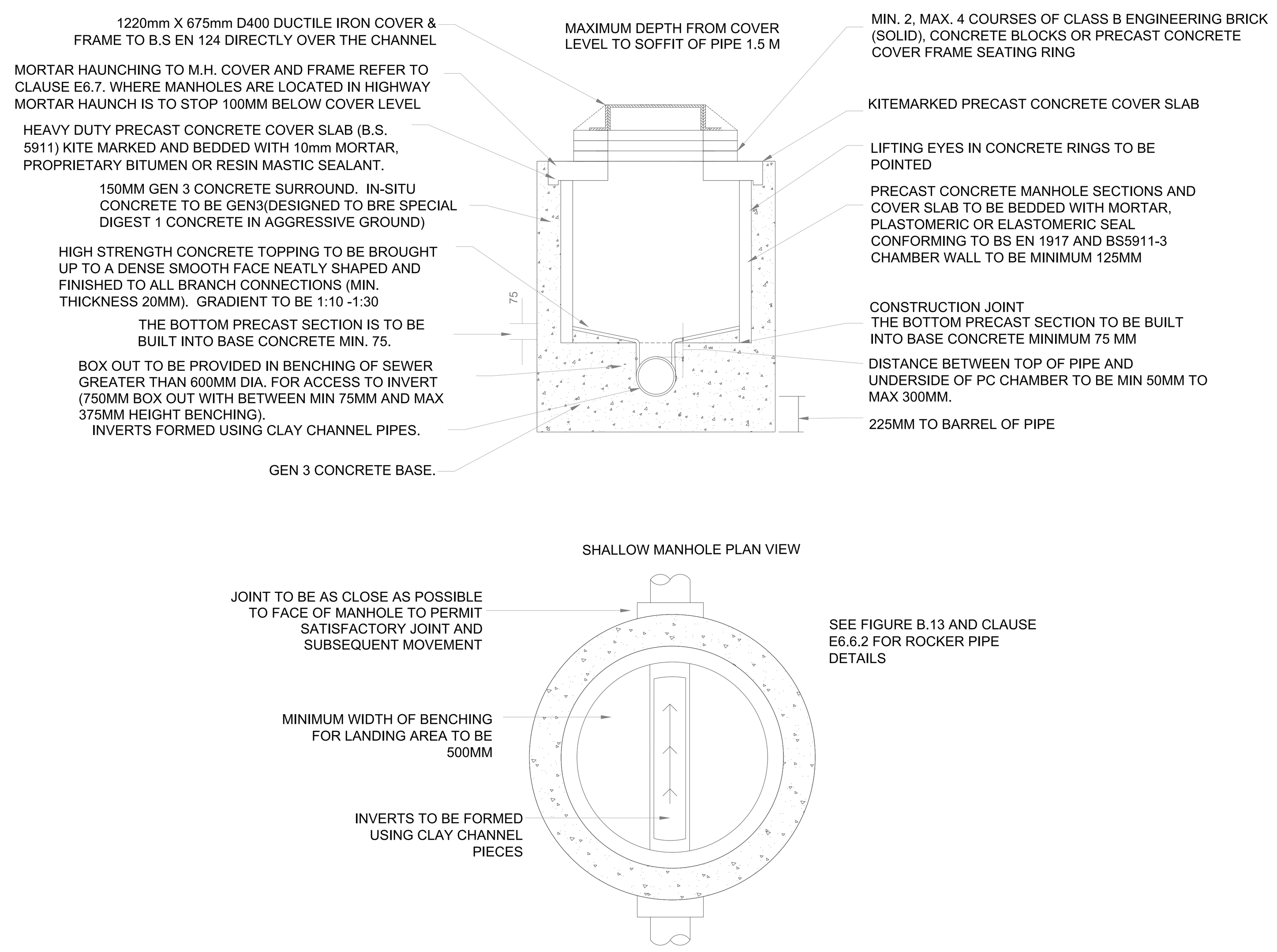
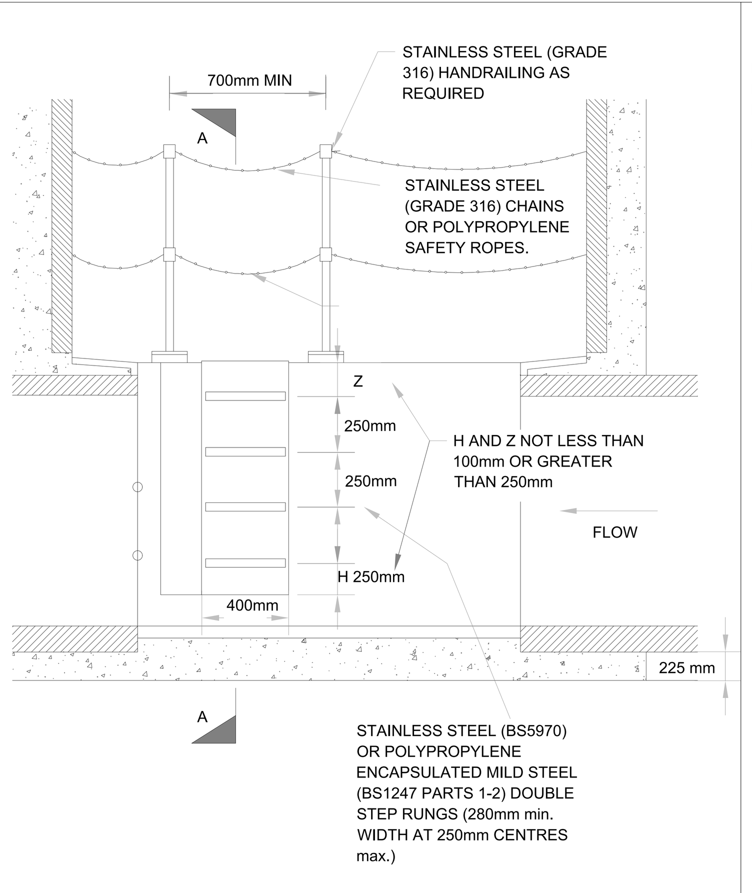


FIGURE B 19
TYPICAL INSPECTION CHAMBER DETAIL - TYPE D
FLEXIBLE MATERIAL CONSTRUCTION ALTERNATIVE TOP DETAILS FOR USE IN AREAS OF LIGHT VEHICLE LOADING OR LANDSCAPED AREAS



TYPICAL MANHOLE DETAIL - TYPE C
MAXIMUM DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE 1.5m
SCALE NTS

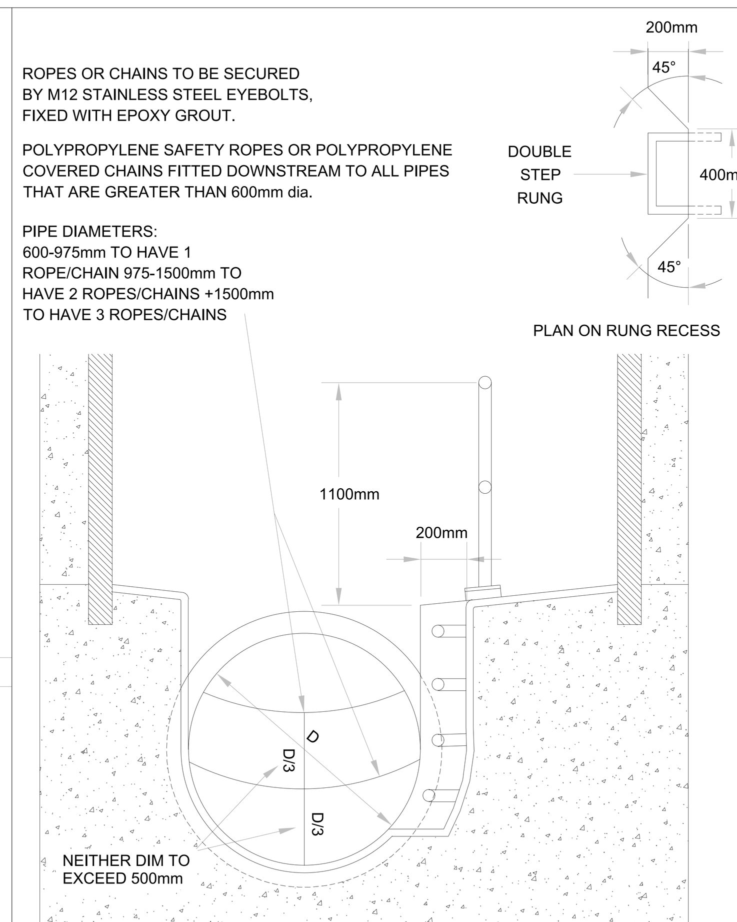


ACCESS TO INVERT FOR PIPES EXCEEDING 600MM Ø.
SCALE 1:20

ROPES OR CHAINS TO BE SECURED BY M12 STAINLESS STEEL EYEBOLTS, FIXED WITH EPOXY GROUT.

POLYPROPYLENE SAFETY ROPES OR POLYPROPYLENE COVERED CHAINS FITTED DOWNSTREAM TO ALL PIPES THAT ARE GREATER THAN 600mm dia.

PIPE DIAMETERS:
600-975mm TO HAVE 1 ROPE/CHAIN 975-1500mm TO HAVE 2 ROPES/CHAINS +1500mm TO HAVE 3 ROPES/CHAINS



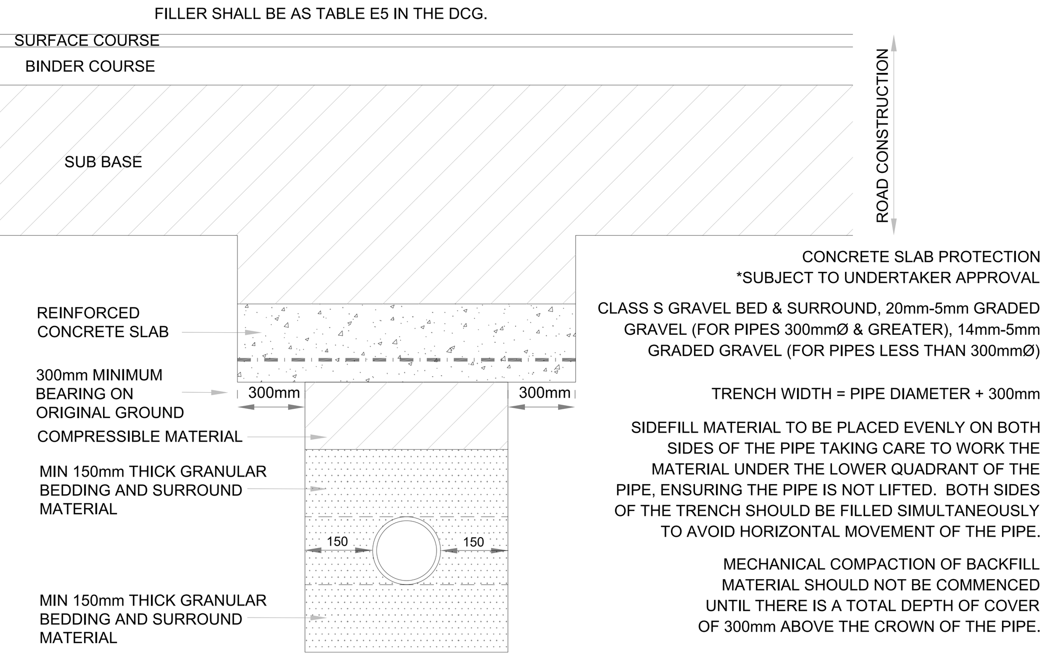
SECTION A-A
SCALE 1:20

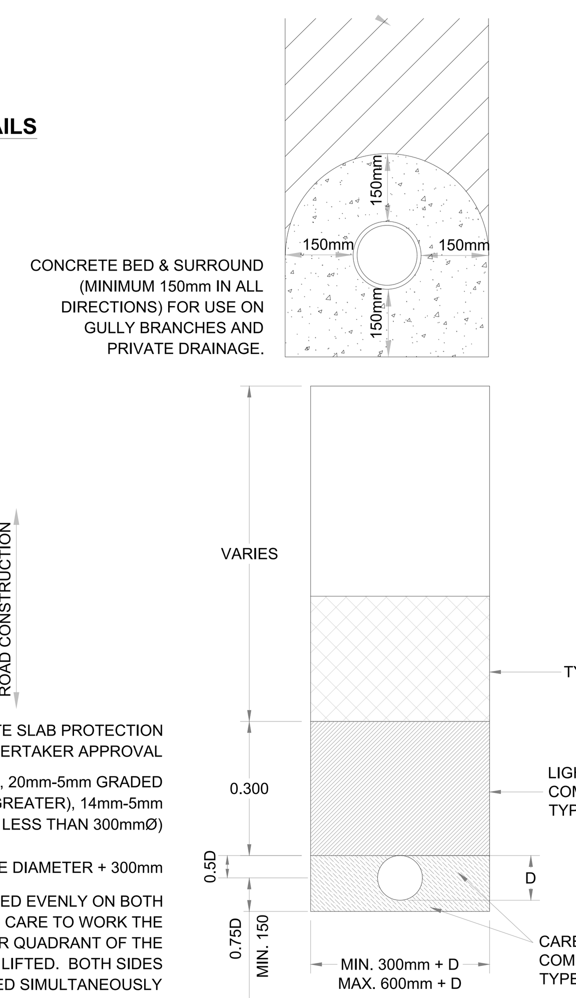
PIPE SURROUND DETAILS
SCALE NTS

N.B. CONCRETE PROTECTION REQUIRED WHERE DEPTH OF COVER FROM PROPOSED ROAD LEVEL AND PIPE SOFFIT IS LESS THAN 1.2m AND ON ALL GULLY BRANCHES.

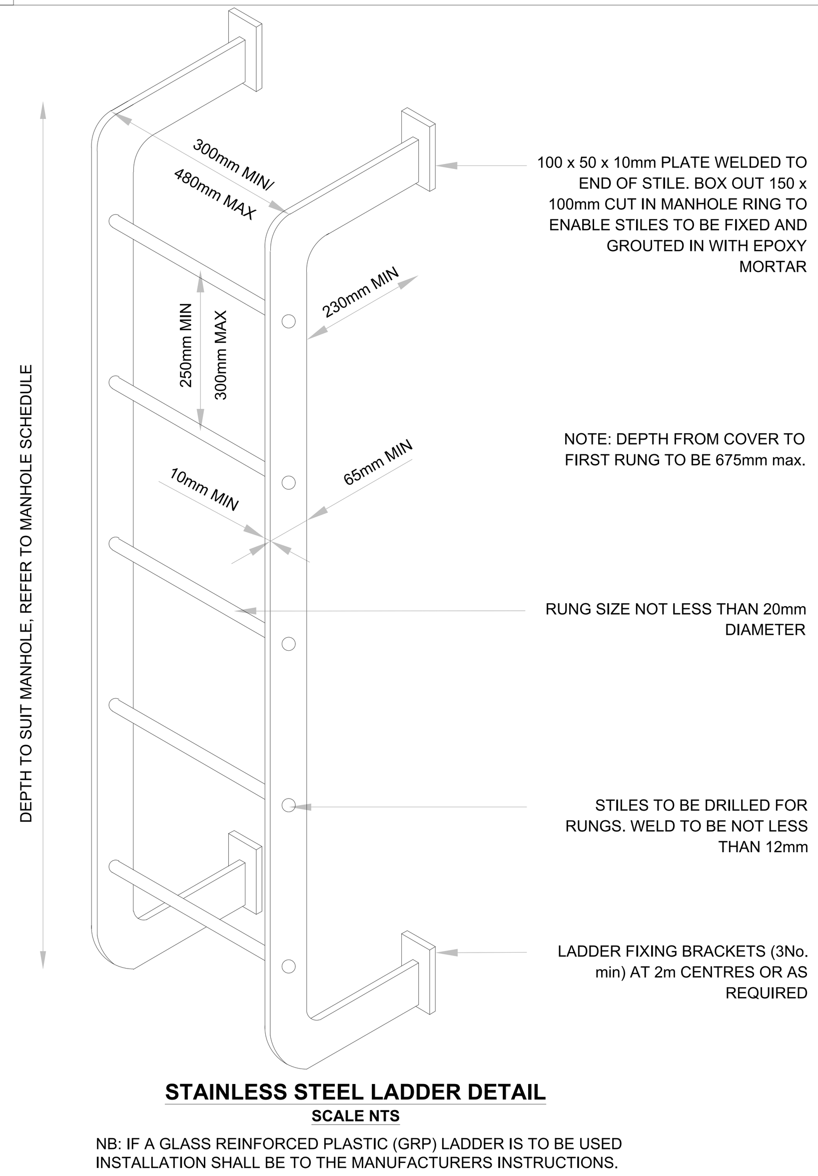
150mm THICK C32/40 CONCRETE SLAB WITH A393 MESH (10mmØ, 200mm x 200mm)REINFORCEMENT TO BOTTOM FACE, 50mm COVER. SLAB TO INCORPORATE EXPANSION JOINTS AT 6M CENTRES.

COMPRESSIBLE FILLER FOR INTERRUPTING CONCRETE PROTECTION TO PIPES SHALL CONSIST OF BITUMEN-IMPREGNATED INSULATING BOARD TO BS EN 622-1 AND BS EN 622-4. THE THICKNESS OF COMPRESSIBLE FILLER SHALL BE AS TABLE E5 IN THE DCG.





PIPES WITH FLEXIBLE BED AND SURROUND (CLASS S)
SCALE NTS



STAINLESS STEEL LADDER DETAIL
SCALE NTS

NB: IF A GLASS REINFORCED PLASTIC (GRP) LADDER IS TO BE USED INSTALLATION SHALL BE TO THE MANUFACTURERS INSTRUCTIONS.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWING REFERENCE'S - 25027-LE-ZZ-ZZ-DR-D-;

SECTION 104
3000 - SECTION 104 - SITE LOCATION PLAN
3001 - SECTION 104 - DRAINAGE PLAN - SHEET 1
3002 - SECTION 104 - DRAINAGE PLAN - SHEET 2
3003 - SECTION 104 - CHAMBER SCHEDULE - SHEET 1
3004 - SECTION 104 - TYPICAL DETAILS
3005 - SECTION 104 - HEADWALL DETAILS
3006 - SECTION 104 - FLOW CONTROL DETAILS
3007 - SECTION 104 - CATCHMENT AREAS - SHEET 1
3008 - SECTION 104 - CATCHMENT AREAS - SHEET 2

SECTION 38
0015 - SECTION 38 - HIGHWAY AND DRAINAGE LONGSECTIONS - SHEET 1
0016 - SECTION 38 - HIGHWAY AND DRAINAGE LONGSECTIONS - SHEET 2

THIS DRAWING IS BASED ON THE FOLLOWING DRAWINGS & DOCUMENTATION;

1. LANDSCAPE LAYOUT - STEN ARCHITECTURE, REF 2261.01-M
2. TOPOGRAPHICAL SURVEY - PD SITE SURVEYS REF 0725-002 DATED MARCH 2021
3. CCTV DRAINAGE SURVEY - NJC SURVEYS, REF U3795/01/CCTV
4. YORKSHIRE WATER PUBLIC SEWER RECORDS - SAFE-MOVE.CO.UK

HEALTH & SAFETY RISKS

IN ADDITION TO THE STANDARD HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING RESIDUAL ABNORMAL HEALTH AND SAFETY RISKS

ABNORMAL CONSTRUCTION RISKS

CR01 CONSTRUCTION IN AND AROUND EXISTING BURIED SERVICES - CONTRACTOR TO OBTAIN ACCURATE LOCATIONS OF UNDERGROUND SERVICES WITHIN THE SITE BOUNDARY PRIOR TO COMMENCEMENT OF WORKS. CONTRACTOR TO ALLOW FOR IN RISK ASSESSMENT AND PROVIDE MITIGATION TO SUIT.

CR02 EXISTING MAJOR SERVICES KNOWN TO BE PRESENT WITHIN THE SITE BOUNDARY: EXTRA PRECAUTIONS TO BE TAKEN IN THE VICINITY OF THE EXISTING GAS MAIN. CONTRACTOR TO ALLOW FOR RISK ASSESSMENT AND PROVIDE MITIGATION TO SUIT.

CR03 UNFORESEEN BURIED HAZARDOUS MATERIALS & SUBSTANCES - INCLUDING ASBESTOS. UNKNOWN CONTAMINATED LAND MAY BE UNCOVERED DURING THE CONSTRUCTION PHASE. CONTRACTOR TO DETERMINE SAFE METHODS OF WORKING IN THE EVENT OF ENCOUNTERING CONTAMINATED LAND.

CR04 DEEP SEWERS (DEEP EXCAVATIONS REQUIRED) - PUMPING MAY BE REQUIRED TO ENSURE EXCAVATIONS REMAIN DRY. CONTRACTOR TO ALLOW FOR IN RISK ASSESSMENT AND PROVIDE MITIGATION TO SUIT.

CR05 SURFACE WATER OUTFALLS INTO EXISTING WATERCOURSE. CONTRACTOR TO DETERMINE APPROPRIATE METHOD TO MAINTAIN WATERCOURSE FLOWS DURING WORKS AND ENSURE NO CONSTRUCTION WASTE ENTERS THE WATERCOURSE.

ABNORMAL OPERATION & MAINTENANCE RISKS

MR01 APPROPRIATE FUTURE MAINTENANCE SHOULD BE IMPLEMENTED TO WATERCOURSE AND BANKS ALONG WITH PROPOSED DRAINAGE, TO MITIGATE POTENTIAL FLOOD EXCEEDANCE/BLOCKAGE OF DRAINAGE/WATERCOURSE.

MR02 APPROPRIATE FUTURE MAINTENANCE SHOULD BE IMPLEMENTED TO WHITE PRECIPITATE (EWP) LAND DRAINAGE TO MITIGATE POTENTIAL CONTAMINATED FLOOD WATER.

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING IN ACCORDANCE WITH THE REQUIREMENTS DEFINED IN THE CDM REGULATIONS 2015.

NOTES

1. THESE NOTES ARE INTENDED TO AUGMENT DRAWINGS AND SPECIFICATIONS. WHERE CONFLICT OF REQUIREMENTS EXIST THE ORDER OF PRECEDENCE SHALL BE AS SHOWN IN THE SPECIFICATION. OTHERWISE THE STRICTEST PROVISION SHALL GOVERN.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS AND ARCHITECTS DRAWINGS.
3. DRAWINGS NOT TO BE SCALED. ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR. ANY DISCREPANCIES TO BE NOTIFIED TO THE ENGINEER AND FURTHER INSTRUCTIONS OBTAINED BEFORE WORK IS COMMENCED.

DRAINAGE NOTES

D01. ALL ADOPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH "CODE FOR ADOPTION", THE RELEVANT BRITISH/EUROPEAN AND IWNL'S STANDARDS/REQUIREMENTS/ADDENDUMS AND KITEMARKED.
D02. DRAINAGE SYSTEMS TO COMPLY WITH BS EN 476 AND BS EN 752.
D03. ALL COMPONENTS USED IN DRAINAGE SYSTEMS TO COMPLY WITH THE FOLLOWING: BS EN476:2011.
D04. ALL DRAINAGE SYSTEMS AND COMPONENTS TO BE CONSTRUCTED AND TESTED TO THE FULL SATISFACTION OF THE RELEVANT ADOPTING AUTHORITY, AND IN ACCORDANCE WITH BS EN1610.
D05. 'VC' DENOTES VITRIFIED CLAY. VITRIFIED CLAY PIPES AND FITTINGS TO COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 295-1:2013, -2:2012, -3:2012 AND BS 65 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS 65 OR EQUIVALENT TO BS EN295 PIPE CRUSHING STRENGTH.
D06. WHERE COVER TO PIPE IS LESS THAN 1.2m (OR 0.9m IN NON TRAFFICKED AREA) TO GROUND LEVEL, PIPE PROTECTION IS REQUIRED IN THE FORM OF A REINFORCED CONCRETE PROTECTION SLAB.
D07. MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124-2 TO 6:2015 AND BS 7903. MANHOLE COVERS AND FRAMES TO BE OF A NON-ROCKING DESIGN WITH CUSHION INSERTS AND KITEMARKED. LOAD CLASS D400 TO BE USED IN VEHICULAR TRAFFICKED AREAS. ALL COVERS TO BE BADGED "F" OR "S" AS APPROPRIATE. MANHOLE COVER SLABS AND ACCESS TO BE IN ACCORDANCE WITH THE BRITISH PRECAST DRAINAGE ASSOCIATION TECHNICAL GUIDE ISSUED JUNE 2019.
D08. ROAD GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124-1 TO 6:2015, BS EN 5911-6:2004 AND BS 7903. TO BE OF A NON-ROCKING DESIGN WITH LEFT HANDED CAPTIVE HINGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 GRATES TO BE USED IN VEHICULAR TRAFFICKED AREAS, WITH A 450mm GRATE AND FRAME. MINIMUM AREA OF WATERWAY TO BE 900cm².
D09. NO MECHANICAL COMPACTION OF FILL MATERIAL WITHIN 300mm OF THE CROWN OF ANY PIPE.
D10. MORTAR TO COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 998-2:2016 AND PD6678:2005.
D11. COVER AND FRAME BEDDING MORTAR TO COMPLY WITH THE DESIGN MANUAL FOR ROADS AND BRIDGES VOLUME 4, SECTION 2, PART 5 HA CD534 CHAPTER 6, AND THE RELEVANT PROVISIONS OF THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAYS WORKS VOLUMES 1 AND 2.
D12. PRECAST CONCRETE MANHOLES TO BE IN ACCORDANCE WITH BS 5911:PART 200. PRECAST CONCRETE RINGS AND COVER SLABS TO BE JOINTED WITH CEMENT MORTAR.
D13. ALL CONCRETE PIPES TO BE CLASS 120 TO BS EN 1916/BS 5911-1:2002.
D14. ALL CONCRETE MANHOLES TO BE IN ACCORDANCE WITH BS 1917/BS EN 5911-3:2010.
D15. INSITU AND PRECAST CONCRETE UNITS SHALL HAVE SULPHATE RESISTING PORTLAND CEMENT TO BS 4027, UNLESS AGREED OTHERWISE WITH THE ADOPTING AUTHORITY.
D16. IN INSTANCES WHERE A SURFACE WATER PIPE IS PROPOSED TO TRAVEL BENEATH A FOUL WATER PIPE THE SURFACE WATER PIPE SHALL BE ENCASED IN CONCRETE FOR SANITARY PURPOSES.

IWNL NOTES

1. ALL ADOPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH "THE CODES FOR ADOPTION" THE RELEVANT BRITISH/EUROPEAN AND IWNL'S STANDARDS/REQUIREMENTS/ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED.
2. MANHOLE COVERS SHALL/MUST HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS D400 TO BS EN 124 WITH 150mm DEEP FRAMES IN HIGHWAYS.
3. FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF IWNL BEFORE ANY SEWER WORKS ARE CARRIED OUT.
4. COVER SLABS MUST CARRY THE BSI KITEMARK OR WILL BE REJECTED BY IWNL INSPECTOR. WHERE THE CLEAR OPENING OF THE KITEMARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOAD BEARING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN TO 600mm X 600mm FOR THE IWNL SPECIFIED COVER SIZE. PLEASE REFER TO CONCRETE PIPE SYSTEMS ASSOCIATION (CPSA), 'TECHNICAL BULLETIN' ISSUED AUTUMN 2004 FOR KITEMARKED COVER SLAB OPENING SIZES.
5. SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
6. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1m AND MANHOLES 0.5m FROM KERB FACES AND SERVICE MARGINS.
7. SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES.
8. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-08-02 (TABLE A2).
9. THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.
10. ADOPTABLE PLASTIC SEWER PIPES TO BE BSI KITEMARKED (CERTIFIED TO WIS 4-35-01 AND BS/EN13476). ADOPTABLE PLASTIC SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS. PLASTIC CHANNEL SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND IWNL WOULD PREFER CLAYWARE CHANNEL IN MANHOLES. WE HAVE FOUND THAT PLASTIC CHANNELS ARE DIFFICULT TO SET IN CONCRETE BECAUSE THEY FLOAT AND A SATISFACTORY FINISH CANNOT BE OBTAINED ON THE BENCHING.
11. WHERE A B125 COVER AND FRAME HAS BEEN APPROVED, THIS MUST NOT BE COATED IN PLASTIC AND MUST HAVE LIFTING EYES SUITABLY SIZED TO ACCOMMODATE STANDARD LIFTING KEYS. SCREW DOWN COVERS ARE NOT ACCEPTABLE.
12. THERE SHOULD BE ENOUGH CLEARANCE TO ACCOMMODATE BEDDING FOR BOTH PIPES, APPROX. 300mm: IF CROSSOVER IS NEAR THE ROCKER THEN THE CLEARANCE NEEDED MAY BE INCREASED.

THE INFORMATION ON THIS DRAWING IS FOR APPROVAL PURPOSES ONLY. NO CONSTRUCTION WORKS ARE TO BE UNDERTAKEN UNTIL WRITTEN APPROVAL IS RECEIVED FROM 'BARNSLEY METROPOLITAN BOROUGH COUNCIL' & 'INDEPENDENT WATER NETWORKS'

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

Stat	Purpose of Issue	Date	Auth
S4	FOR APPROVAL	30.06.25	RSL

Rev	Description	By	Date	Chk'd	Auth
P01	FIRST ISSUE	TH	30.06.25	CK	RSL

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Client: AVANT homes

Project: GREAT HOUGHTON BARNSLEY

Title: SECTION 104 - TYPICAL DETAILS

Sheet Size	Original Scale	Designed/Drawn	Checked	Authorised
A0	NTS	TH, Date 30.06.25	CK, Date 30.06.25	RSL, Date 30.06.25

Status	Drawing Number	Rev
S4	25027-LE-ZZ-05-DR-D-3004	P01